CLAIMS

What is claimed is:

1. A heat-developable image-recording material comprising on a support:

a silver-supplying layer containing an organic silver salt, a reducing agent, an organic binder and substantially no photosensitive silver halide; and

a separate photosensitive layer containing a photosensitive silver halide;

the heat-developable image-recording material further containing an electron-transfer agent.

2. The heat-developable image-recording material according to Claim 1 wherein the organic binder is formed from a polymer latex dispersed in an aqueous medium.

3. The heat-developable image-recording material according to Claim 2, wherein the reducing agent has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

4. The heat-developable image-recording material according to Claim 2 , wherein the silver-supplying layer contains a halogen precursor.

5. The heat-developable image-recording material according to Claim 3, wherein the silver-supplying layer contains a halogen precursor.

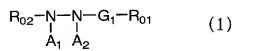
6. The heat-developable image-recording material according to Claim 4, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

7. The heat-developable image-recording material according to Claim 5, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

8. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

9. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

10. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a hydrazine derivative represented by the general formula below:



$$R_{02}-\underset{A_1}{N}-\underset{A_2}{N}-G_1-R_{01} \qquad (1)$$

wherein R_{02} denotes an aliphatic group or an aromatic group, R_{01} denotes hydrogen, alkyl, aryl, an unsaturated heterocyclic group, alkoxy,

aryoxy, amino or hydrazino, G_1 denotes -CO-, $-SO_2-$, -SO-, -P(O)-, $-R_{03}P(O)-$, -COCO-, thionylcarbony or iminomethylene, and A_1 and A_2 independently denote hydrogen, or substituted or unsubstituted alkylsulfonyl and R_{03} is chosen from the groups defined for R_{01} and may be the same as or different from R_{01}.

11. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of substituted alkene derivatives, substituted isoxazole derivatives and acetal compounds represented by the following general formulae (3) to (5)


(3)


(4)


(5)

wherein general formula (3) R_1, R_2 and R_3 independently denote hydrogen or a substituent, and Z denotes an electron withdrawing group or a silyl group, in general formula (3), R_1 and Z, R_2 and R_3, R_1 and R_2, or R_3 and Z may be bonded together to form a cyclic structure, in general formula (4), R_4 denotes a substituent, in general formula (5), X and Y independently represent hydrogen or a substituent; A and B independently denote alkoxy, alkylthio, alkylamino, aryloxy, arylthio, anilino, heterocyclic oxy, heterocyclic thio or heterocyclic amino, and in general formula (5), X and Y, and A and B may be bonded together to form a cyclic structure.

12. A method for forming an image by heat development comprising:

imagewise exposing a heat-developable image-recording material comprising, on a support,

a silver-supplying layer containing an organic silver salt, a reducing agent, and an organic binder, and

a separate photosensitive layer containing a photosensitive silver halide,

the heat-developable image-recording material further containing an electron-transfer agent; and then

heat-developing the heat-developable image-recording material;

whereby development of the photosensitive layer forms a silver image in the silver-supplying layer.

13. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains substantially no photosensitive silver halide.

14. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains a halogen precursor.

15. The method for forming an image by heat development according to 12, wherein the photosensitive layer contains a reducing agent.